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10/674,594

09/29/2003

George D. Vernstrom

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07/02/2008

3M INNOVATIVE PROPERTIES COMPANY

PO BOX 33427

ST. PAUL, MN 55133-3427

EXAMINER

PARSONS, THOMAS H

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GEORGE D. VERNSTROM,
RADOSLAV ATANASOSKI, MARK K. DEBE,
GREGORY M. HAUGEN, KRZYSZTOF A. LEWINSKI, and
ANDREW J.L. STEINBACH,
Appellants

Appeal 2008-3521
Application 10/674,594¹
Technology Center 1700

Decided: June 30, 2008

Before ADRIENE LEPIANE HANLON, CATHERINE Q. TIMM, and
MARK NAGUMO, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Application 10/674,594 (cited as "Spec.") filed 29 September 2003, titled *Fuel Cell Cathode Catalyst*. The real party in interest is listed as 3M Co. and 3M Innovative Properties Co. (Appeal Brief filed 20 July 2007 ("Br."), at 2.)

George D. Vernstrom, Radoslav Atanasoski, Mark K. Debe, Gregory M. Haugen, Krzysztof A. Lewinski, and Andrew J.L. Steinbach (“Vernstrom”) appeal the final rejection of claims 1-25 under 35 U.S.C. § 103(a) in view of Debe.^{2,3} We REVERSE.

According to Vernstrom, the claimed subject matter relates to catalysts comprising alternating layers of platinum and a second layer of iron and certain specified metals. (Spec. 2:25-29.) The catalysts, which are required to have additional specified “nanostructures,” are said to be useful as fuel cell cathode catalysts. (Spec. 1:13.)

Representative claim 1 reads:

Claim 1

A fuel cell cathode catalyst comprising

- [a] nanostructured elements which comprise microstructured support whiskers bearing nanoscopic catalyst particles,
- [b] said nanoscopic catalyst particles made by alternating application of first and second layers,
 - [1] said first layer comprising platinum and
 - [2] said second layer being an alloy or intimate mixture of iron and a second metal selected from the group consisting of Group VIb metals, Group VIIb metals and Group VIIIb metals other than platinum and iron,
 - [3] where the atomic ratio of iron to said second metal in said second layer is between 0 and 10,
 - [4] where the planar equivalent thickness ratio of said first layer to said second layer is between 0.3 and 5,

² Mark K. Debe, Gregory M. Haugen, Andrew J. Steinbach, John H. Thomas, III, and Raymond J. Ziegler, *Catalyst for Membrane Electrode Assembly and Method of Making*, U.S. Patent 5,879,827, 9 March 1999.

³ Examiner’s Answer mailed 1 November 2007 (“Ans.”) at 4.

and

- [5] wherein the average bilayer planar equivalent thickness of said first and second layers is less than 100 Å.

(Claims App., Br. 5; paragraphing and labels in square brackets added.)

The Examiner finds that Debe discloses a fuel cell cathode catalyst comprising nanostructured elements as specified in parts [a] and [b], citing the abstract, further “comprising platinum, iron and second metal selected from the group consisting of Group VIb metals, Group VIIb metals and Group VIIIb metals ([Debe] col. 10: 14-26.)” (Ans. 4.)

The Examiner finds that Debe does not specifically disclose any of limitations [1] through [5] (Ans. 4-5), but urges that the disclosures at Debe 4:27-40, 14:52-61, 10:14-36, 10:55-59, 10:63-11:3, 12:43-13:17 show that “it would have been within the skill of one having ordinary skill in the art at the time the invention was made to have modified the method and apparatus of Debe et al., which are similar to those instantly disclosed, to provide the claimed first and second layer compositions,” and the remaining limitations of claim 1. (Ans. 5-6.)

Vernstrom denies that Debe provides any teachings of limitations [1] through [5]. (Br. 3-4.)

We have reviewed the passages cited by the Examiner. None of those passages recite a catalyst having a first layer comprising platinum. None of those passages recite a catalyst having a second layer comprising an alloy or intimate mixture of iron and any other metal, including the metals of Groups VIb, VIIb, and VIIIb recited in limitation [2]. The absence of iron in the metals recited at Debe column 10, lines 25 to 27, save by default in the

opening phrase “transition metals such as,” and the absence of a specific description of alloys or intimate mixtures of iron with any of the other metals is striking. The Examples in Debe, which the Examiner did not cite, describe only catalysts having a platinum-ruthenium core and a platinum-ruthenium-oxygen surface composition. (Debe at cols. 18-23.)

The description of a large genus is rarely, without more, a description of individual species within the genus. In the present case, the Examiner has failed to direct our attention to any credible evidence that suggests that a person having ordinary skill in the art would have selected the particular compositions recited by Vernstrom on the basis of the disclosures of Debe.

In view of the record and the foregoing considerations, it is:

ORDERED that the rejection of claims 1-25 under
35 U.S.C. § 103(a) in view of Debe is REVERSED.

REVERSED

qsg

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ST. PAUL, MN 55133-3427